



BRANFORD LAND TRUST

SPRING 2022 • VOLUME 32, NUMBER 1

Jarvis Creek Farm

thank you

The Branford Land Trust is thrilled to announce the purchase of Jarvis Creek Farm! Thanks to the support of the community — including grants and donations — we have raised more than \$1,700,000 to preserve and protect this 20-acre section of the Medlyn Farm south of Route 146 and along the Jarvis Creek salt marsh.

Close to 500 donations large and small have arrived enthusiastically since we announced the fundraiser in November. Support came from BLT members, Branford residents, surrounding towns, and friends and family near and far. Thanks to the partnership with the Guilford Land Conservation Trust, an additional \$50,000 came from our neighbors to the east.

We are especially grateful to the Seedlings Foundation for recognizing the strategic and scenic importance of this special property and offering generous financial support early in the campaign so that we could confidently pursue the purchase. And to the Connecticut DEEP, which provided \$500,000 through an EPA Long Island Sound Improvement Grant. Combined with a generous donation in memory of Thomas A. Steitz and an anonymous gift, we exceeded our goal!

This all-hands-on-deck effort was possible because of endorsements from Audubon Connecticut, Connecticut Audubon Society, Friends of Historic Route 146, Menunkatuck Audubon Society, The Nature

Conservancy in Connecticut, and Save the Sound. We're also appreciative of our local media — *Shoreline Times*, *The Sound*, *Daily Nutmeg*, *Branford Patch* — for helping us get the word out about this unprecedented effort to raise funds.

We're excited to take on the stewardship of Jarvis Creek Farm which, as CT DEEP Commissioner Katie Dykes noted, "provides places for outdoor education, research and outdoor recreation, critical fish and wildlife breeding and foraging habitat, and flood and erosion control."

We look forward to sharing what happens next as we look to create a property management plan that addresses trails, access, educational opportunities, and marsh migration.

"This type of open space preserve is part of what makes Branford such a special place," says BLT president Pete Raymond. "We are most grateful to YOU — our members and the community — who continue to support the BLT in its work to maintain and steward these natural places for future generations. Thank you!" ■

Photos by Jen Payne





BRANFORD LAND TRUST

P.O. Box 254
Branford, CT 06405
(203) 483-5263
branfordlandtrust.org

PRESIDENT
Peter Raymond

VICE PRESIDENT
Julie Wagner

SECRETARY
Ellen C. Skinner

TREASURER
Robert Olejarczyk

**CORRESPONDING
SECRETARY**
Christopher Cheney

DIRECTORS
Andy Bromage
Jen Broom
Lauren Brown
Bill Chapin
Terry Elton
Bob Hull
Gordon Hutchinson
Jonathan Katz
Steve Mentz
Gaile Ramey
Martha Rice
Marcia Wheeler

**BRANFORD LAND
TRUST NEWS**
EDITORS:
Connie Drysdale
Jen Payne
Ellen C. Skinner

ADVISORY BOARD

John Anderson
Robert Babcock
Amos Barnes
Chet Blomquist
Tom Cleveland
Chris Collins
Gunther (Bud) Dannheim
Beth Dock
Connie Drysdale
Ted Ells
Gary Garnet
Karyl Lee Hall
Maryanne Hall
Karen Hannon
Ainsley Highman
Bill Horne
Barbara Johnson
Paul Kazmercyk
Meg Kilgore
Todd Konnik
Louise LaMontagne
Bill Leece
Carol Lemmon
Pat McGlashan
Michael McGuinness
Harry Merrick
Joan Merrick
Ellen Page
Jen Payne
Stephanie Peck
Jim Perito
Lynn Perone
Elizabeth Possidente
Matt Reed
Bill Reynolds
Richard Shanahan
Heather Smiarowski
Maria Storm
John Watson
Stephen Weinstein
Larry Wheeler
Christopher Woerner

WE'RE BAAACK! Popular BLT Events Return!

May 7 & May 8

SPRING BIRD WALKS

Saturday & Sunday, 9:00 a.m.

Local birder Chris Woerner leads two popular walks over Mother's Day weekend along the Stony Creek Trolley Trail and BLT's Vedder property. Learn to identify birds by sight and by call. Meet in Stony Creek at the end of West Point Rd. Families welcome, but no dogs.

May 23

BLT ANNUAL MEETING

Monday, 6:00 p.m.

Join us for our Annual Meeting, live at the Blackstone Library featuring Gerald Torres, Professor of Environmental Justice, Yale School of the Environment. His presentation on environmental justice and land conservation will follow a brief business meeting and the election of officers and directors. Please watch our website for current COVID precautions and a Zoom link if you would like to attend virtually.

May 24

HORSESHOE CRAB PROGRAM

Tuesday, 7:00p.m.

Join this co-sponsored program with the First Congregational Church of Branford and the Branford Land Trust to learn about the ecology and importance of Horseshoe crabs in our lives today. This program is open to the public, but registration is required. Please email info@killamspoint.org to register.

August 18

25TH ANNUAL ENVIRONMENTAL DAY CAMP

Thursday, 9:00 a.m. - 4:00 p.m.

Children ages 5-9 will enjoy hands-on activities, including touch tanks, woodland and Long Island Sound exploration, nature crafts, and more. See the enclosed form for details. Scholarships available. Registration deadline is August 16.

November 19

POETRY READING & BOOK LAUNCH

Save the date! Join the northeast land trust community, including the Branford Land Trust, to celebrate the publication of *Windblown*, a printed anthology of poetry and art that raises awareness of the importance of land conservation. Watch for details!



The Branford Land Trust NEWS is mailed to all Land Trust members. It is produced by Words by Jen, Branford, and printed with soy ink on FSC Certified paper with 50% post-consumer content.

EVOLUTIONS AFTERSCHOOL PROGRAM

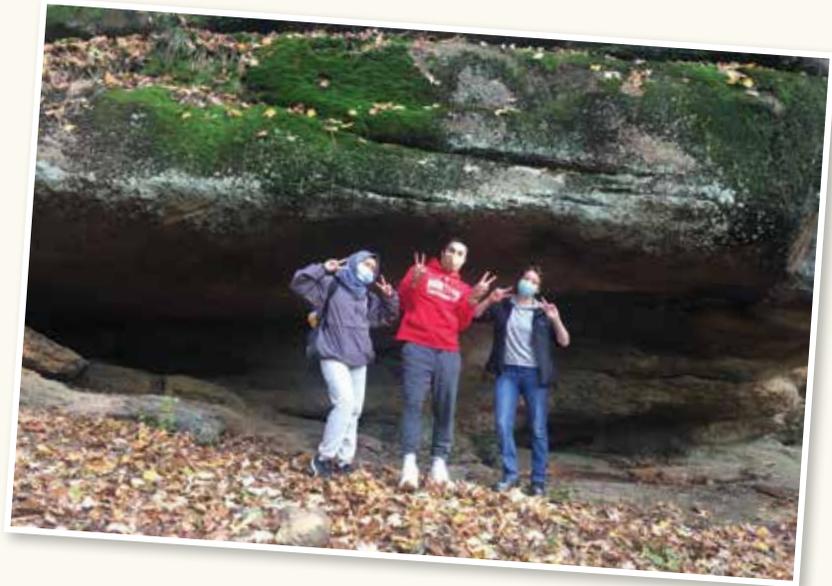
by Julie Wagner

The BLT recognizes that youth involvement is crucial to the future of land conservation, but that the average American child spends 4-7 minutes per day playing outside, and over 7 hours per day in front of a screen.* Lacking time outdoors is particularly relevant for urban kids and those from communities that have historically been denied access to — or removed from — lands. Stark disparities in access to open space exist across income, education, race and ethnicity including right here along the shoreline. The BLT is addressing these issues with an exciting new initiative.

The BLT is partnering with the EVOLUTIONS (Evoking Learning and Understanding through Investigations of the Natural Science) Afterschool Program. EVO, as it is known, is a free, hands-on science, career, and college prep program at the Yale Peabody Museum for New Haven and West Haven public high school students. Established in 2005, EVO has grown to serve 100 area students each year through weekly classes, weekend employment, and summer internships, along with field trips, special events, and support through college.

Through peer mentoring and training provided by Sci.CORPS (Science Career Orientation and Readiness Program for Students), EVO students work as science educators in paid positions in the Museum, learning communication and work skills as content creators, exhibit interpreters, and event leaders. Students in 9th and 10th grade are eligible and, once accepted, remain through graduation and on through college.

The BLT worked with Richard d'Albert, board member of the Donald A. Pels Charitable Trust



to collaborate on exposing EVO students to conservation related science, activities and experiences. After COVID delays, the partnership kicked off in the fall of 2021 with a BLT guided walk for several EVO members. The walk included introduction to trail blazes and navigation, ecosystems, land conservation, human history of the land, and the work of the BLT. Long range activities will focus on mentoring advanced standing SciCorps students to lead junior members on similar hikes through BLT properties themselves. This spring, activities will include a creative endeavor with EVO students producing a BLT promotional video. This summer EVO members will enjoy a day of "forest bathing" - a modern Japanese practice of paying attention to the five senses in nature — on BLT property offered by a certified guide.

"We are very pleased to support this partnership between the Branford Land Trust and Yale Peabody's EVOLUTIONS Program," said d'Albert. "This collaboration

is an opportunity to share the resources of the BLT and provide students from the greater New Haven area with valuable insight into areas such as land conservation and the environmental sciences."

Dr. Andrea Motto, manager of Public & Youth Engagement and Director of the EVO Program at Yale Peabody Museum agrees. "This partnership is a fantastic opportunity for the youth employees in Sci. CORPS to practice their teaching and communication skills, while learning from the passionate volunteers at BLT. We are excited to see this mutually beneficial project grow in the coming years."

Through this program, the BLT hopes to foster access to nature for all young people and to create a pipeline of youth who are enthusiastic about land conservation and the science that supports it. ■

*EVO students at Red Hill Woods. Photo by Andrea Motto. *Read about "Why Kids Need to Spend Time in Nature" on childmind.org.*

YOUR LAND TRUST AT WORK

by Jen Payne, originally published in *Neighbors Magazine*

"I want to say thanks to the Branford Land Trust. Over the last year, my family has taken much joy in exploring Land Trust properties. We hiked almost daily, got lost (literally) at Van Wie Preserve, and kayaked frequently to Umbrella Island. What you all have worked and continue to work for gave us a welcome distraction during this crazy year, and has made us love our town even more."

This note from one of our neighbors highlights the essence of the Branford Land Trust (BLT), established in 1967 to protect Branford's open space and natural resources.

You know the name, and you've seen the familiar blue-and-green striped BLT signs across town. But here are some things you might not know...

The BLT is run entirely by volunteers and supported by donations and membership dues. It manages and protects more than 1,000 acres and holds conservation easements on another 408 acres in Branford. That's almost 1,500 acres of:

- Upland Forest, with swamps, floodplains, vernal pools, and six freshwater ponds
- Farmland and old fields
- Coastal Areas including tidal marsh and upland
- Rocks & Reefs (and a small patch of shellfish bed in the Timbles!)

About 24 acres of its farmland and fields are mowed for hay by Page's Dairy Farm. The remaining areas are regularly maintained as "old field" habitat by BLT volunteers.

As a matter of fact, the BLT manages and maintains ONE DOZEN NATURE PRESERVES and 30+ MILES OF HIKING TRAILS.



You can find trail maps for many of these on the BLT website including: Farm River Preserve, Short Beach Preserve, Todds Hill, Lucy Hammer Woodlands, Mill Creek Marsh, Pisgah Brook Watershed Preserve, Bontatibus Preserve, Tidal Branford River Preserve, Foote-Sybil Creek Preserve, Goss-Trolley Trail-Vedder, Van Wie-Red Hill Preserve, Hoadley Creek Preserve, and the Jarvis Creek Preserve.

(Some of these are protected by a web of overlapping owners including the Town of Branford.)

While much of the BLT's community outreach — guided walks, lecture series, environmental day camp, Branford Public School programs — has been on hold during the pandemic, it remains committed to its mission to preserve open space in Branford, and to promote our community's appreciation of Branford's diverse natural features.

HOW CAN YOU HELP? Visit branfordlandtrust.org to become a member today! ■

Get Involved! Join Now!

Scan the QR code to be directed to our online membership form, or visit branfordlandtrust.org today!



KNOW EGRETS...

According to the CT DEEP, the great egret is a large member of the heron family, with long legs, white plumage, and a slender body. Adults have black legs and feet. During the breeding season, the normally yellow bill may appear orange and long feather plumes (aigrettes) extend from the back to beyond the tail. Immature egrets and non-breeding adults have no plumes and the color of their bills and legs is duller. In flight, the great egret holds its neck in a more open S-shape than do other white herons. The species utters a loud, low-pitched, hoarse croak.

The snowy egret is a medium-sized, white heron with a slender, black bill, black legs and yellow feet. The area of the upper bill, in front of the eyes, is yellow but turns red during the breeding season. Showy, recurved plumes are present on the back during the breeding season. The snowy egret is much smaller than the great egret. ■

*Branford photographer
Christine Chiochio captured
these two egrets enjoying the
marsh near the BLT's Jenny
Vedder property along the
Trolley Trail in Stony Creek.
Can you tell which is which?*

Photo by Christine Chiochio



Not only do invasive plants cost towns, state agencies, land trusts, farmers, homeowners, and others large sums of money and thousands of hours of labor for removal and restoration, invasive plants cause serious harm to woodlands, farms, wetlands, and other natural areas. They also contribute to a decline in habitat that leads to a decline of the wildlife populations needed for a healthy environment.

It's no secret that invasive plants are disrupting local ecosystems as they outcompete and decimate our native flora. The problem is so widespread and much more than what a few dedicated volunteers can accomplish.

Some of our worst invasive plants, while on the Connecticut Invasive Plant List, are not prohibited from sale. While volunteers work to remove plants like Burning Bush and Barberry from our woodlands, trails and parks, these and other invasives are still being sold in nurseries across Connecticut.

An effort is currently under way to encourage reasonable actions to help control them on a state-wide basis. Watch the BLT website for more information!



HAVE YOU SEEN THIS PLANT?

by Lauren Brown

Does it grow on your property? If so, GET RID OF IT! This woody vine goes by many names — porcelain vine, porcelain berry, Amur peppervine, or wild grape — but one of its nicknames is the kudzu of the North. Like kudzu in the South, porcelain berry spreads rampantly, engulfing trees and shrubs in its path and eventually killing them by blocking out the sunlight. If you drive out of New York, you will see it abundantly along the highways in the Bronx and Westchester County. Then you will see it some in Fairfield County, but you will undoubtedly see more if you go again in the near future. It is spreading.

Like so many invasive plants, porcelain berry is native to Asia, from where it was brought in the 19th century to be planted as an ornamental. The admittedly attractive blue berries are equally attractive to birds, who spread them, and with no natural enemies, porcelain berry has spread far and wide in many parts of the country. It far more aggressive than Asian bittersweet.

Though there has been an infestation along Route 5 in North Haven for several years, we in Branford have so far not been cursed with large manifestations of its presence. However, this winter, a population was spotted in town, and the fruits were already dispersed, which means seedlings could start popping up anywhere. The owners of the property where it occurred have expressed an interest in controlling it, but this will not be an easy task. The very deep roots are almost impossible to dig up, and permanent control is almost impossible without the use of herbicides. If porcelain berry is on your property and you can't undertake a large-scale control effort, at least try to cut back the flowering branches to prevent the plant from going to seed. Yes, the berries are the pretty part of its life cycle, but the native trees and shrubs of Branford will thank you. ■

Above: A seedling of porcelain berry. They are relatively easy to pull up; this is a simple method of control. Photo from Wikipedia.

WOULD YOU LIKE TO HELP PROTECT NATIVE PLANTS IN BRANFORD?

The Branford Land Trust and the Town Conservation and Environment Commission are launching a new initiative called the Native Plant Protection Corps. Working both on BLT and Town-owned conservation lands, the group's goal will be to try to reduce the spread of non-native invasive species by focusing on small infestations, with the hope of nipping them in the bud before they become impossible to control.

Invasive plants are those that spread widely on their own, displacing native species and

disrupting natural habitats. In Connecticut, these include Norway maple, tree of heaven, garlic mustard, porcelainberry, Japanese barberry, oriental bittersweet, autumn olive, winged euonymus, yellow flag iris, European privet, Japanese honeysuckle, Morrow's honeysuckle, purple loosestrife, Japanese stilt grass, common reed, Japanese knotweed, mile-a-minute weed, black locust, multiflora rose, and wineberry.

The Native Plant Protection Corps is being spearheaded by Lauren Brown, botanical author and

BLT board member, and Patrick Sweeney, botanist at the Peabody Museum and member of the Community Forest and Conservation & Environment Commissions.

Please watch for more information about the Native Plant Protection Corps. or email info@branfordlandtrust.org. ■



TODDS HILL WET MEADOW PRESERVE

A lot has been happening at the Todds Hill Wet Meadow Preserve, a 24-acre open space set-aside located between Todds Hill Road, Cherry Hill Road and Parish Farm Road. Last fall, BLT volunteers, including a group from the FreeThink biotech company, cut up fallen limbs and trunks of some of the large trees and moved them into brush piles and neighbors Kevin Conte and Jamie Cosgrove mowed the grassy areas. The BLT trails and fields management team has made multiple visits, clearing the large autumn olive thickets that had grown up on the eastern part of the property. Members of the Conservation Commission have begun planning a multi-year effort to enhance the wet meadow habitat, which will start in coming months, and the property management committee is finding out what will be involved to design and create an accessible path so that all members of our community will be able to explore and enjoy the area. Watch for future news of these and other activities on this park-like addition to BLT's preserves. ■

Photos by Julie Wagner



WRITING THE LAND PROJECT TO FEATURE BLT AND BACA

Call For Artists • Deadline: Tuesday, May 31

The Branford Land Trust is excited to participate in Writing the Land, a project that links local artistic and conservation communities. This creative collaboration, made possible by funding from the Deirdre Baker Schiffer Fund, will reveal itself later this year in a printed anthology of work titled *Windblown*, an online book launch and poetry reading, and local, in-person readings.

Writing the Land, together with poets, artists and land trusts, creates annual anthologies of poetry and art to help raise awareness of the importance of land conservation, ecosystems, and biodiversity across the country. Its northeast anthology, *Windblown*, will feature efforts of the Branford Land Trust, work by Norwalk poet Laurel Peterson, and artwork by members of the BLT and Branford Arts and Cultural Alliance (BACA).

As part of this effort, Peterson has adopted the Beacon Hill Preserve, and will walk and write about the land throughout the coming year.

Peterson is Professor of English at Norwalk Community College. Her poetry has been published in many small literary journals, and she has two poetry chapbooks: *That's the Way the Music Sounds* and *Talking to the Mirror*. She co-edited a collection of essays on women's justice titled *(Re)Interpretations: The Shapes of Justice in Women's Experience*, wrote the mystery novel, *Shadow Notes*, and published a full-length collection of poetry, *Do You Expect Your Art to Answer You?* She served as poet laureate of Norwalk, CT from April 2016 — April 2019.

Because the work of Writing the Land gains strength, depth, beauty, and energy from a multitude of voices, the BLT has partnered with Branford Arts and Cultural Alliance (BACA) to feature local artists in the *Windblown* anthology. BACA is a local non-profit organization whose mission is to support all of the arts in Branford and on the shoreline.

Would you like to see your artwork featured in the anthology? We're looking for artwork that features Branford Land Trust properties or protected open space in Branford. Entries from members of the BLT and/or BACA will be

juried by BACA and must be received by Tuesday, May 31. There is an entry fee of \$25. Submission guidelines can be found under CONTACT at www.branfordlandtrust.org and on the home page of www.branfordarts.org.

For more information about WRITING THE LAND, visit www.writingtheland.org. For more information about the Branford project, including BLT properties and protected open spaces visit www.branfordarts.org or www.branfordlandtrust.org. ■



Above, poet Laurel Peterson walks the Beacon Hill property with BLT members Julie Wagner and Steve Mentz. Photo Peter Gloor.

COLLECTIVE CARE & INDIGENOUS WISDOM

Recommended reading by Laura Noe

Leanne Betasamosake Simpson writes, “strong communities are born out of individuals being their best selves.” As a Canadian indigenous woman, musician, and writer, she shares the wisdom of First Nations. In a world that is profoundly out of balance, indigenous writings remind me that there is a way of thinking, believing, and living that is harmonious and rooted in reciprocity, reverence, and kinship.

For these reasons, I am drawn to these books for inspiration and hope:

Dancing On Our Turtle’s Back — Stories of Nishnaabeg Re-Creation, Resurgence, and a New Emergence by Leanne Betasamosake Simpson.

Fusing science with the sacred and offering a point of view that prioritizes interdependent relationships with nature, I adored Robin Wall Kimmerer’s *Braiding Sweetgrass*. “How, in our modern world, can we find our way to understand the earth as a gift again, to make our relations with the world sacred again?”

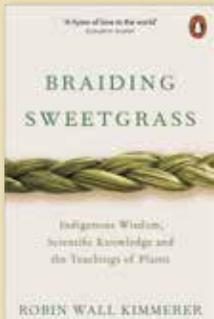
There are no better teachers in nature than trees. The symbol of life, hope, and perseverance, trees are the model for how humans should be living. Peter Wohlleben’s *The Hidden Life of Trees* and his later book, *The Heartbeat of Trees*, we learn how trees communicate and collaborate and share resources. They live in community and work together to collectively benefit the forest. Suzanne Simard’s first book, *Finding the Mother Tree*, she writes of the intuitive interdependence of trees with Mother Trees at the center of the community. Both Wohlleben and Simard combine

science and indigenous wisdom when they write about the mycorrhizal fungi.

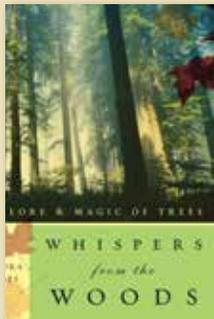
Seen on top of roots and existing below the surface, the fungi are transmitters and communicate the need for water, sugar, and light to trees in what they refer to as the “wood wide web.” The importance of connection in nature offers humans a how-to in living.

Sandra Kynes’ *Whispers from the Woods, The Lore and Magic of Trees* is divided into two parts. In the first, she writes about working with tree energy and she shares beliefs from a wide range of cultures. “Receiving clear messages from trees is not an everyday occurrence. However, it is important to remain open and aware, as most communication is subtle. We humans tend to be so used to the obvious—we like information to be handed to us in widescreen, Technicolor, surround-sound, action-packed entertainment. The natural world doesn’t work this way, and so we need to slow down, empty our minds of the useless junk, and listen.” In the second half of her spiritually crafted book, she identifies 50 tree species and offers histories and healing attributes.

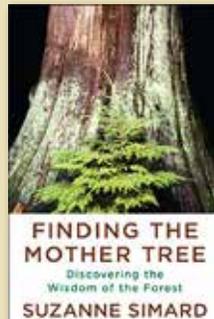
Indigenous wisdom offers us an understanding that we are all connected—humans, plants, and animals, and living harmoniously benefits all. When we all are being our best selves, we all thrive. These readings have helped me understand the interrelatedness of all species and to know that forests are a public health solution. ■



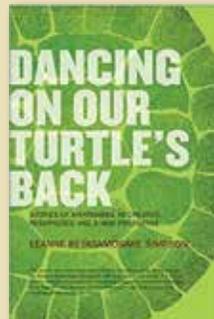
Braiding Sweetgrass
Robin Wall Kimmerer



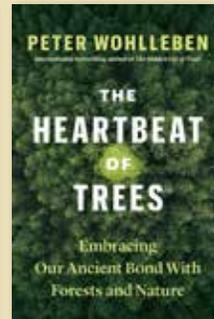
Whispers from the Woods, The Lore and Magic of Trees
Sandra Kynes



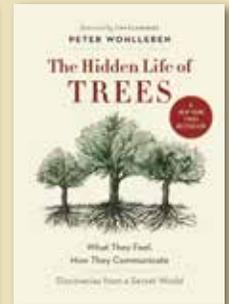
Finding the Mother Tree
Suzanne Simard



Dancing On Our Turtle’s Back
Leanne Betasamosake Simpson



The Heartbeat of Trees
Peter Wohlleben



The Hidden Life of Trees
Peter Wohlleben

OUR WORK HERE IS NEVER DONE

by Gordon Hutchinson



The BLT Trails Crew has kept busy all winter and spring with several projects, including the removal of invasive autumn olive from Partnership Field and the Todd's Hill-Parish Farm property, as well as clearing the pink trail on the north side of Red Hill Road. Most recently, they've renovated a slightly raised walkway on the wet stone trail-bed downhill from Red Hill Road. The walkway is constructed from downed pines in the area and milled on site using an impressive Alaskan Chainsaw Mill. Pictured are Matt Reed, Dave Andrews, Bob Hull, John Ruckes, Jacky Alaimo. Photos by Gordon Hutchinson. ■

WHAT THE BLAZES?

by Jen Payne



Thanks to ongoing efforts of our Trails Committee, more and more BLT trails are being blazed according to Appalachian Mountain Club (AMC) standards. Maybe you've seen the blazes at Van Wie Woods, Red Hill Woods, and the Supply Pond and Pisgah Brook Preserves.

They are your guides for how to move around in the woods! Do you know how to read them?

- One vertical blaze identifies your trail.
- Two vertical blazes with one off-set above the other, indicates that there is a turn ahead. The higher marker lets you know which direction — left or right.
- One vertical blaze with two colors, marks a connector trail. The color on top is the trail ahead, the lower half is the trail you came from.
- Two horizontal blazes signify the end of the trail.

In Branford, you'll also see:

- 3" round white markers indicating the Branford Trail, a 28-mile path around the perimeter of town that overlaps BLT trails in several sections.
- Green diamond blazes that mark the Shoreline Greenway Trail in the southern part of town.

Always remember to bring a map (print or virtual) when you walk a new or unfamiliar trail. With that and an understanding of the blazes you see along the way, you'll enjoy your woods walking adventure all the more! ■

My nephew Max and I have been hiking Branford trails since he was old enough to walk. He's always been a lively and curious kid, so our first adventures were mostly about staying on the trail and not falling down. As he's gotten older, he's learned how to follow trails, how to know what direction to go, and how to read the trail blazes — those "colored dots" on the trees he used to call them. Thankfully, he's inherited our family's reliable internal GPS system. "This way," he calls out then pulls me along.

Unfortunately, not everyone has that natural sense of direction. Sometimes, being in the middle of the woods on a rambling, rough-hewn trail can be a little confusing — especially with the addition of fallen leaves or fresh snow.

Maps for many BLT properties can be found online at www.branfordlandtrust.org under EXPLORE.



You are on the pink trail.



Green trail, turn left.



Pink trail, turn right.



Toward the pink trail, from the blue trail.



End of the red trail.



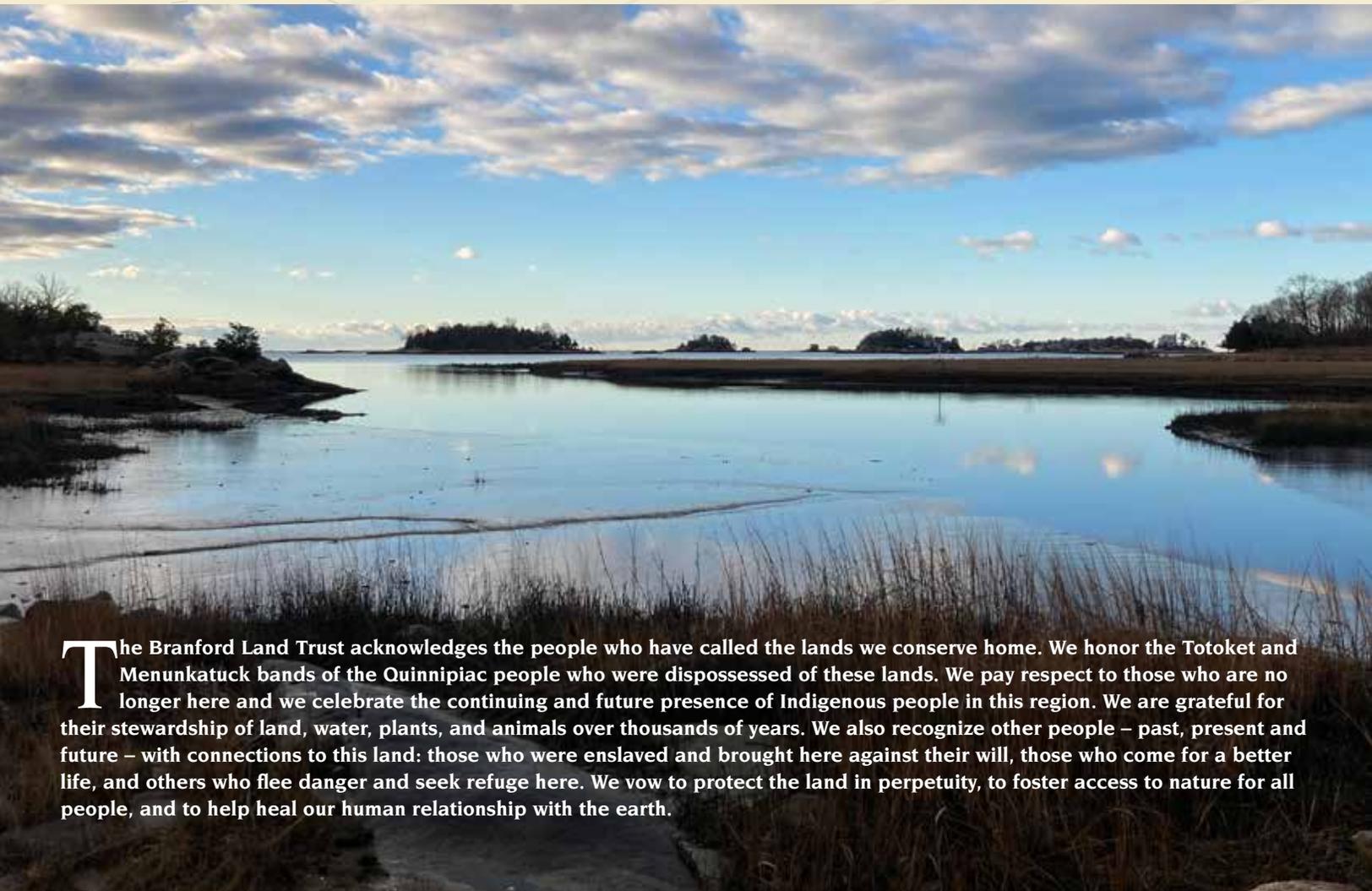
**BRANFORD
LAND TRUST**

P.O. Box 254
Branford, CT 06405



Non-Profit Org.
US Postage
PAID
Permit #559
New Haven, CT

Photo of Jarvis Creek by Jen Payne



The Branford Land Trust acknowledges the people who have called the lands we conserve home. We honor the Totoket and Menunkatuck bands of the Quinnipiac people who were dispossessed of these lands. We pay respect to those who are no longer here and we celebrate the continuing and future presence of Indigenous people in this region. We are grateful for their stewardship of land, water, plants, and animals over thousands of years. We also recognize other people – past, present and future – with connections to this land: those who were enslaved and brought here against their will, those who come for a better life, and others who flee danger and seek refuge here. We vow to protect the land in perpetuity, to foster access to nature for all people, and to help heal our human relationship with the earth.